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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,713	03/08/2004	Yuko Miyake	2309.69966	2878

7590 08/09/2005

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EXAMINER
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BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/796,713	Applicant(s) MIYAKE ET AL.	
	Examiner Kevin M. Bernatz	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 13-17 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                             |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/8/04</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Preliminary amendments to cancel claims 7 – 12 filed on May 20, 2005, have been entered in the above-identified application.

### ***Election/Restrictions***

2. The Examiner notes that since all claims of the second group have been cancelled, the restriction requirement has been rendered moot.

### ***Drawings***

3. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
4. The Examiner notes that several of the drawing pages appear that the margins may not meet the requirements of 37 CFR 1.84(g). Applicants are requested to confirm that the drawings meet the margin requirements.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Osaka et al. (U.S. Patent No. 6,120,918) as evidenced by Yoshikawa et al. (U.S. Patent No. 6,132,892).

Regarding claims 1 and 3, Osaka et al. disclose a magnetic thin film comprising a base layer being made of FeCo/NiFe (*Figure 5, elements 12 and 26 and relevant disclosure thereto*); and a plated layer being formed on said base layer, said plated layer being made of FeCo (*element 25 and relevant disclosure thereto*), wherein the plated layer meets applicants' claimed composition and property limitations (*Figure 8; col. 6, lines 45 – 52; and col. 8, lines 54 – 66*). The Examiner notes that applicants' present claims are open to additional elements being in the FeCo film, as well as additional layers being located between the "base layer" and the "plated layer".

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Regarding claims 5 and 6, Osaka et al. disclose base layers meeting applicants' claimed material and thickness limitations (*col. 5, lines 30 – 63, where the Examiner notes that permalloy is  $Ni_{80}Fe_{20}$  and naturally exists as a fcc structure, absent explicit manipulation to form it as non-fcc – see Yoshikawa et al., col. 6, lines 62 – 67 and col. 16, line 28*).

7. Claims 1 – 4 and 13 are rejected under 35 U.S.C. 102(a) and/or (b) as being anticipated by Kawasaki et al. (U.S. Patent App. No. 2002/0132137 A1) – **and** –

8. Claims 1 – 4 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawasaki et al. (U.S. Patent No. 6,765,757 B2). The Examiner will refer to US Patent '757 B2 for column+line citations.

Regarding claims 1, 3, 4 and 13, Kawasaki et al. disclose a magnetic head of a magnetic disk drive unit (*Title*) comprising an upper magnetic pole, a lower magnetic pole, a write gap being formed between said upper magnetic pole and said lower magnetic pole, and magnetic films being provided to parts of said upper magnetic pole and said lower magnetic pole, which are located at peripheries of said write gap, wherein each of said magnetic thin films comprises a base layer being made of FeCo/NiFe; and a plated layer being formed on said base layer, said plated layer being formed of FeCo (*col. 2, lines 18 – 44; col. 5, lines 6 – 23; and claims 9 and 10 – wherein the Examiner notes that the upper and lower core layers are the NiFe parts of the base layer, the sub layer not in contact with the magnetic gap are the FeCo parts of the base layer, and the sub layer in contact with the magnetic gap is the plated FeCo layer*). The

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Examiner notes that Kawasaki et al. disclose that the plated FeCo layer meets applicants' claimed composition and property limitations (*col. 1, lines 52 – 60 and Figures*). Regarding the type of coercivity, the Examiner notes that the alloys in Figure 10 appear to inherently meet the claimed limitation with regard to the *hard axis coercivity*.

Regarding the limitations of claim 2, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the prior art alloys appear to be identical in composition to applicants' claimed alloys.

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Therefore, in addition to the above disclosed limitations, the presently claimed property limitations in claim 2 would have inherently been present because the alloys are identical in composition.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. as applied above, and further in view of Sano et al. (U.S. Patent No. 6,661,606 B2).

Kawasaki et al. is relied upon as described above.

While Kawasaki et al. appears to inherently disclose alloys meeting a minimum hard axis coercivity, Kawasaki et al. fail to explicitly disclose that it is the hard axis coercivity being limited.

However, Sano et al. teach that for magnetic films used in magnetic heads, it is the combination of high saturation magnetization (as also taught by Kawasaki et al.) and low coercivity in the hard axis direction that results in good soft magnetic performance for the materials when used in magnetic head applications (*Figures 10, 17C and 18C; and col. 2, lines 32 – 63*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kawasaki et al. to insure that the coercivity in the hard axis is minimized as shown in Kawasaki et al. Figure 10 as taught by Sano et al., since Sano et al. teach that it is the combination of high saturation magnetization and low coercivity in the hard axis direction that results in good soft magnetic performance for the materials when used in magnetic head applications.

11. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. in view of Osaka et al. ('918) and Yoshikawa et al. ('892).

Kawasaki et al. is relied upon as described above.

Kawasaki et al. fail to disclose base layers meeting applicants' claimed limitations.

However, Osaka et al. teach upper and lower core layers meeting applicants' claimed material and thickness limitations as appropriate materials for forming cores and pole + pole tips in magnetic heads to insure the ability to write to high density recording media (*summary of invention and col. 5, lines 30 – 63, where the Examiner notes that permalloy is  $Ni_{80}Fe_{20}$  and naturally exists as a fcc structure, absent explicit manipulation to form it as non-fcc – see Yoshikawa et al., col. 6, lines 62 – 67 and col. 16, line 28*). The Examiner further notes that Yoshikawa et al. provides explicit teaching that  $Ni_{80}Fe_{20}$  is suitable as a core layer (*col. 16, line 28*) and that forming Ni-based alloys with an fcc-orientation, one can achieve small magnetostriction and good corrosion resistance (*col. 6, lines 62 – 67*).



It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kawasaki et al. to utilize base layers meeting applicants' claimed composition and thickness limitations as taught by Osaka et al. and Yoshikawa et al., since such limitations are taught to be appropriate for producing a magnetic head capable of writing to high density recording media.

12. Claims 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. as applied above, and further in view of Gotoh et al. (U.S. Patent App. No. 2002/0131205 A1).

Kawasaki et al. is relied upon as described above.

Regarding claims 14 – 17, Kawasaki et al. fail to disclose a plated layer made of FeCoRu meeting applicants' claimed composition and property limitations, though the Examiner notes that Kawasaki et al. already teach saturation magnetic flux density values and coercive force values meeting applicants' claimed limitations.

However, Gotoh et al. teach adding 0.5 – 18 mass percent (*i.e. approximately 0.3 – 11.5 at%*) of Ru to a plated FeCo alloy in order to improve the corrosion resistance and still possess a saturation magnetization of 2.0T or higher (*Paragraphs 0012 – 0015 and 0025*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kawasaki et al. to include Ru in an amount meeting applicants' claimed limitations as taught by Gotoh et al. in order to

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improve the corrosion resistance and still possess a saturation magnetization of 2.0T or higher.

13. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. in view of Gotoh et al. as applied above, and further in view of Sano et al. ('606 B2).

Kawasaki et al. and Gotoh et al. are relied upon as described above.

While Kawasaki et al. appears to inherently disclose alloys meeting a minimum hard axis coercivity, Kawasaki et al. fail to explicitly disclose that it is the hard axis coercivity being limited.

However, Sano et al. teach that for magnetic films used in magnetic heads, it is the combination of high saturation magnetization (as also taught by Kawasaki et al.) and low coercivity in the hard axis direction that results in good soft magnetic performance for the materials when used in magnetic head applications (*Figures 10, 17C and 18C; and col. 2, lines 32 – 63*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kawasaki et al. in view of Gotoh et al. to insure that the coercivity in the hard axis is minimized as shown in Kawasaki et al. Figure 10 as taught by Sano et al., since Sano et al. teach that it is the combination of high saturation magnetization and low coercivity in the hard axis direction that results in good soft magnetic performance for the materials when used in magnetic head applications.

**Conclusion**

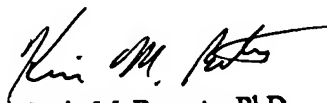
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Belson et al. (U.S. Patent No. 3,699,553) teach that it is known in the art that the hard and easy axis of coercive force are normal to each other (*Figures*).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
August 5, 2005

  
Kevin M. Bernatz, PhD  
Primary Examiner